Unit 11: Radicals and Sequences
Operations with Radicals

Name: _____
Date: _____ Period: 7th

I. Adding and Subtracting with Radicals

Use the same concept as that of adding or subtracting Like variables.
*In other words, the radicals must be the same before you combine (+/-) them.

Examples:	**Add:** $2\sqrt{3}+5\sqrt{3}$	Since the radicals are the same, simply add the numbers in front of the radicals (do NOT add the numbers under the radicals). RADICANDS **Answer:** $7\sqrt{3}$
	Add: $4\sqrt{5}+3\sqrt{7}$	Since the radicals are not the same, and both are in their simplest form, there is no way to combine these values. The answer is the same as the problem. **Answer:** $4\sqrt{5}+3\sqrt{7}$ **Warning:** If the radicals in your problem are different, be sure to check to see if the radicals **can** be simplified. Often times, when the radicals are simplified, they become the same radical and can then be added or subtracted. Always simplify, if possible, before deciding upon your answer. Ex: $2\sqrt{2}+3\sqrt{18}=2\sqrt{2}+9\sqrt{2}=11\sqrt{2}$ (2·9, 3·3)

NOW YOU PRACTICE:

Simplify the following expressions:

1) $2\sqrt{7}+4\sqrt{7}=6\sqrt{7}$
2) $12\sqrt{6}-7\sqrt{6}=5\sqrt{6}$
3) $3\sqrt{12}+7\sqrt{3}=6\sqrt{3}+7\sqrt{3}=13\sqrt{3}$ ($2\cdot3\sqrt{12}$, $2\cdot2\cdot3$)
4) $2\sqrt{9}+\sqrt{5}=6+\sqrt{5}$ ($2(3)$)
5) $3\sqrt{20}-\sqrt{32}$ $6\sqrt{5}-4\sqrt{2}$ ($3\sqrt{20}$, $2\cdot2\cdot5$; $4\sqrt{32}$, $2\cdot16$)
6) $8\sqrt{2}+2\sqrt{8}-4\sqrt{4}=8\sqrt{2}+4\sqrt{2}-8=12\sqrt{2}-8$ or $-8+12\sqrt{2}$ ($2\cdot2\sqrt{8}$, $2\cdot4$; $-4(2)$)